NH Commercial Salt Applicator Certification

A Win for Business and the Environment

May 6, 2015

Source Water Protection Conference

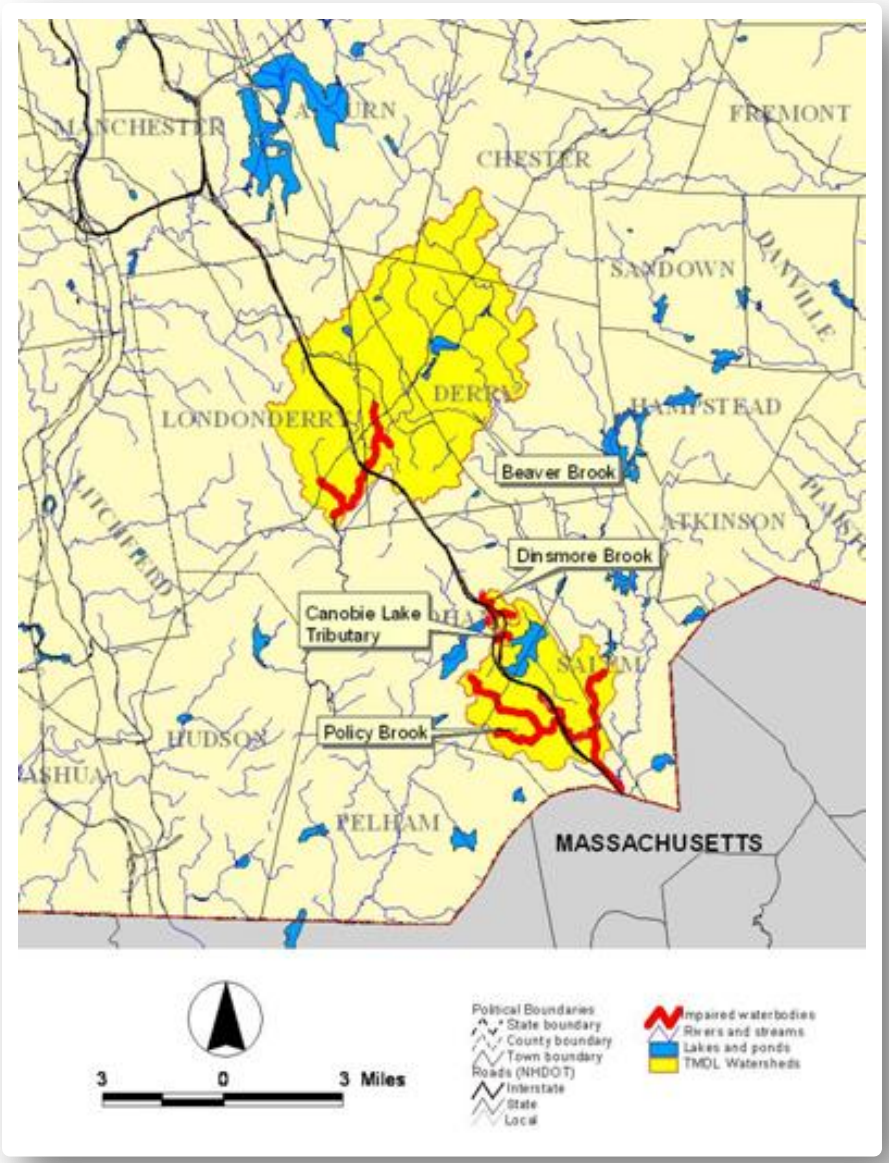
Patrick Woodbrey, Salt Reduction Coordinator NHDES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

NEW HAMPSHIRE CERTIFIED GREEN SnowPro

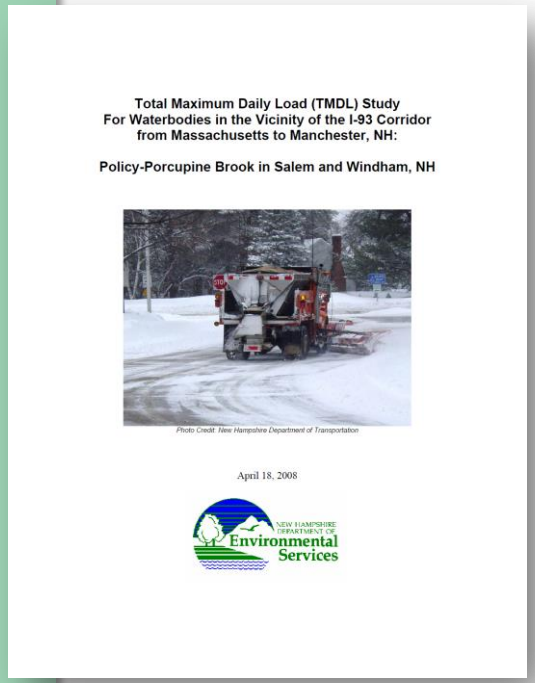
Need Certification?

I-93 Chloride Impairments



Chloride **TMDL**

TOTAL MAXIMUM DAILY LOAD

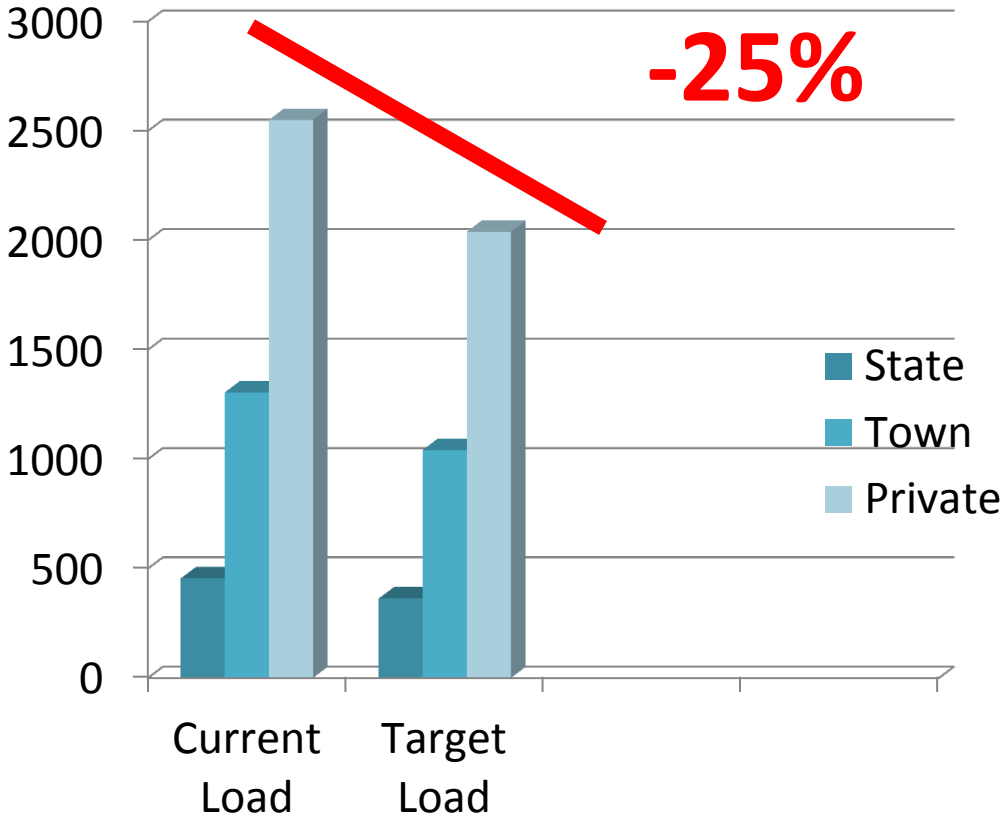

Total Maximum Daily Load (TMDL) Study
For Waterbodies in the Vicinity of the I-93 Corridor
from Massachusetts to Manchester, NH:

Policy-Porcupine Brook in Salem and Windham, NH

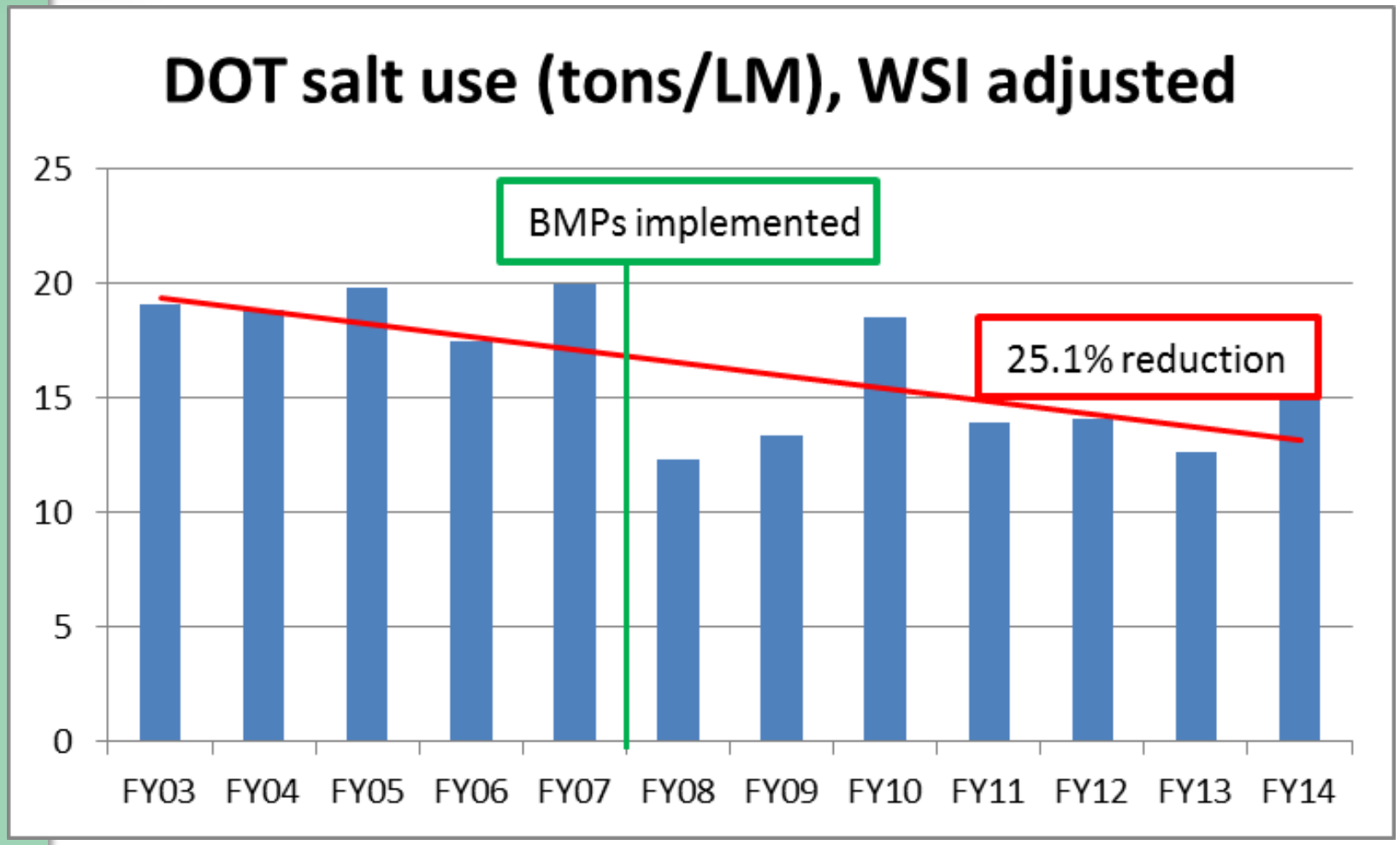
Photo Credit: New Hampshire Department of Transportation

April 18, 2008

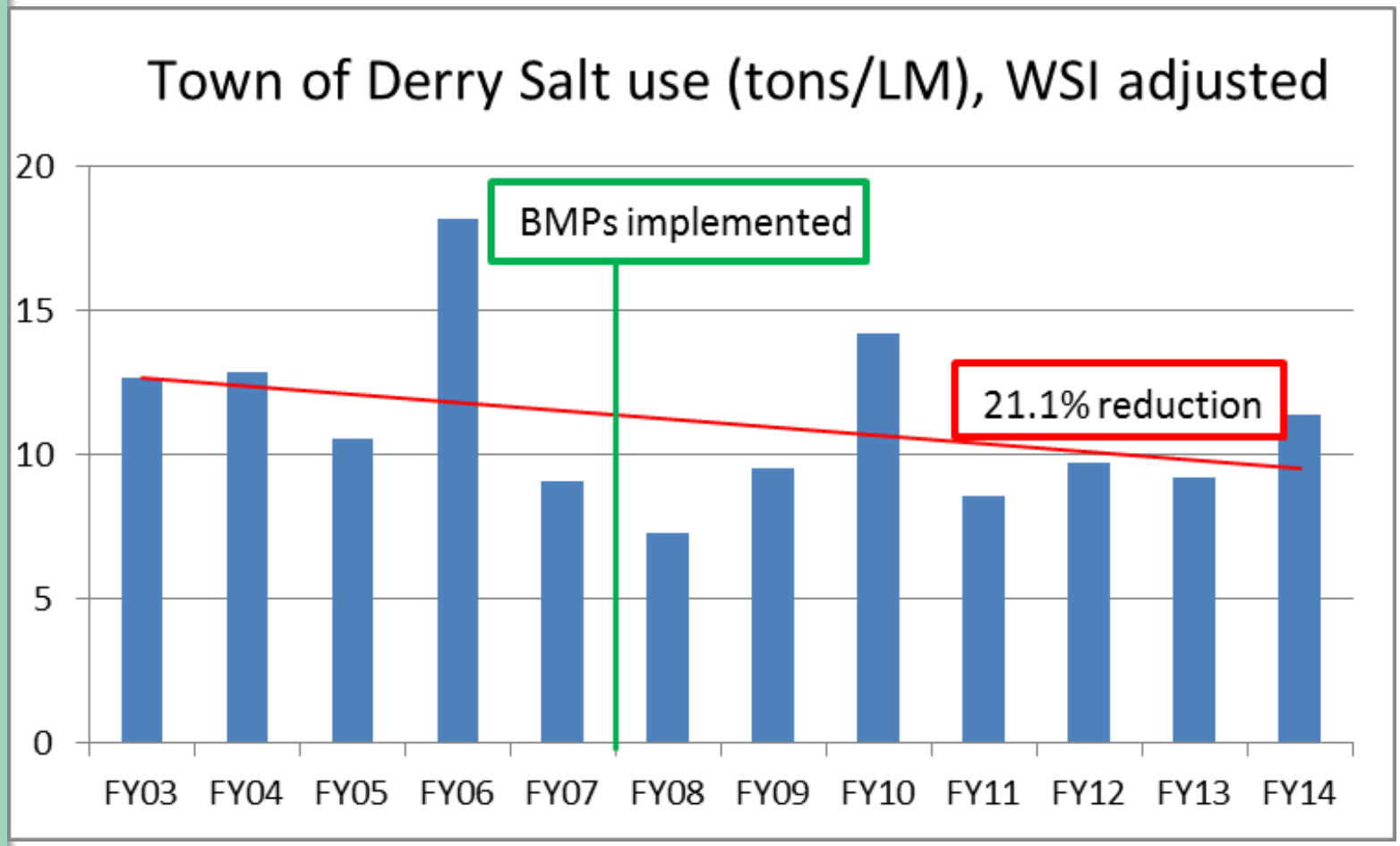
NEW HAMPSHIRE DEPARTMENT OF Environmental Services



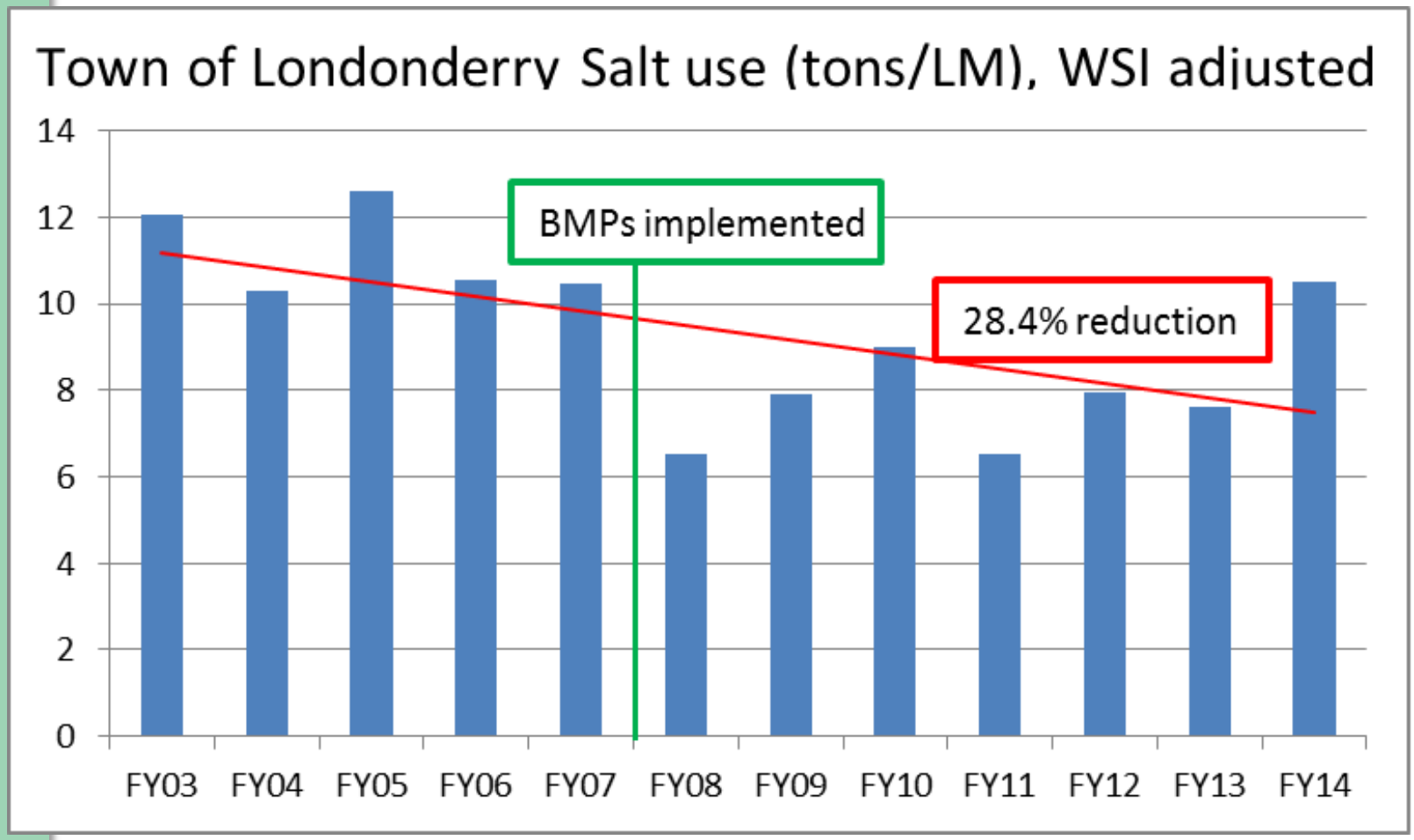
DOT Meeting Reduction Goal
Preliminary data



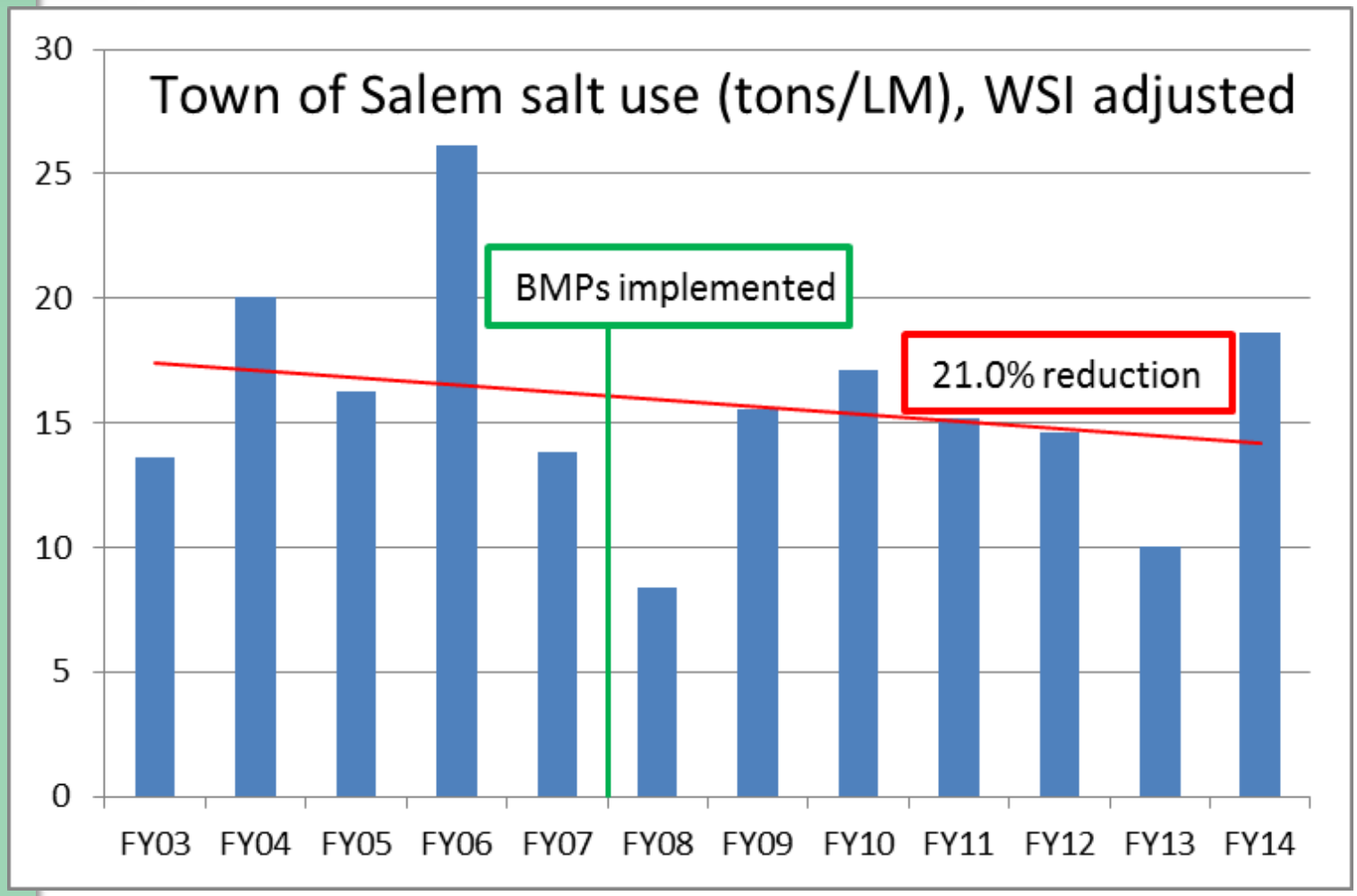
Derry NH Reductions
Preliminary data



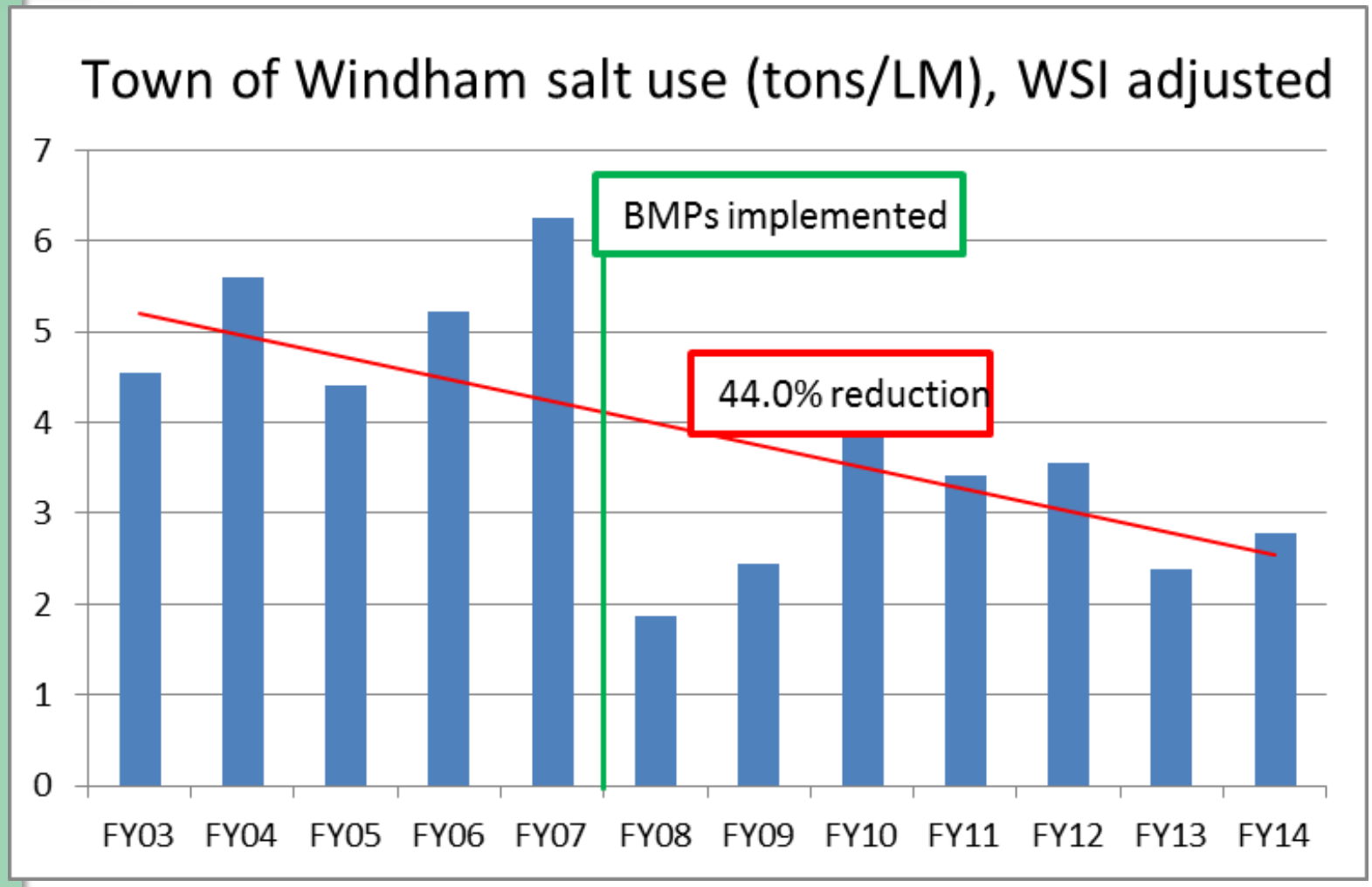
Londonderry Reductions
Preliminary data



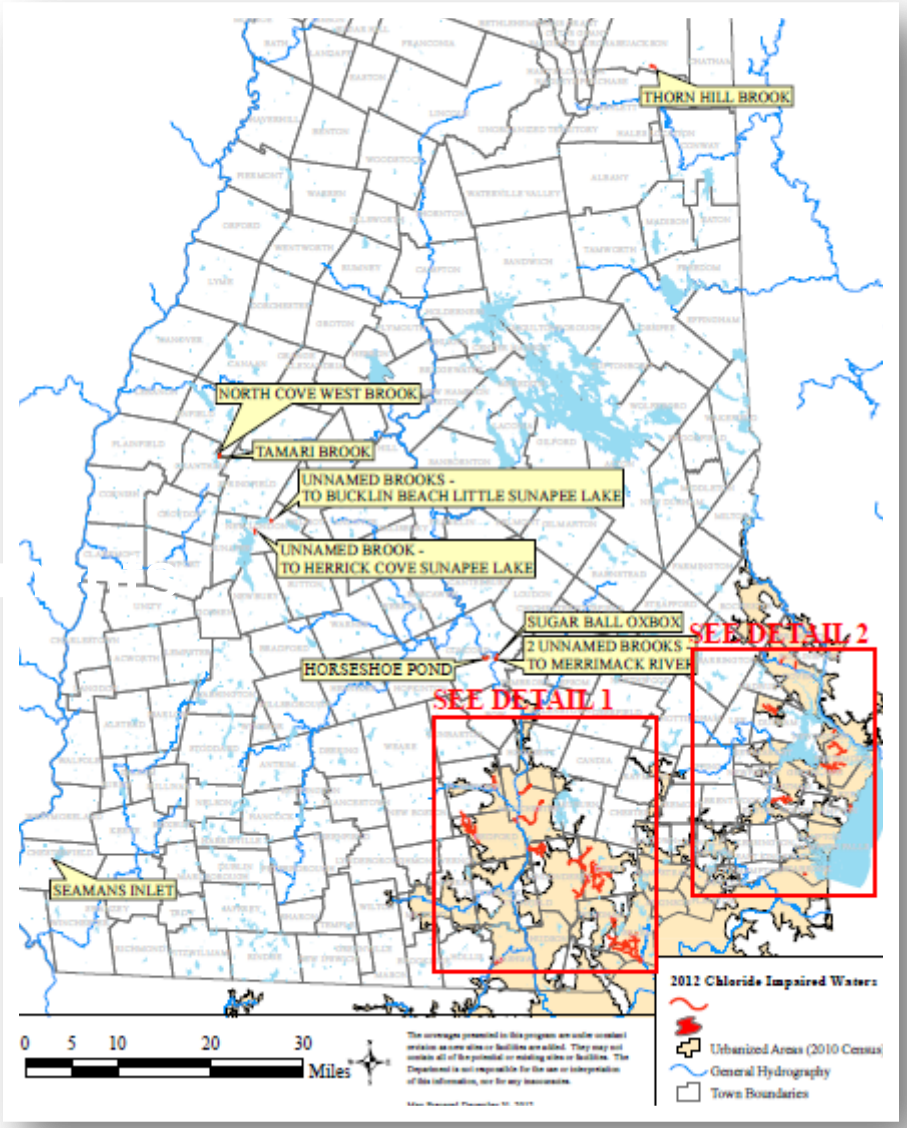
Salem Reductions
Preliminary data



Windham Reductions
Preliminary data

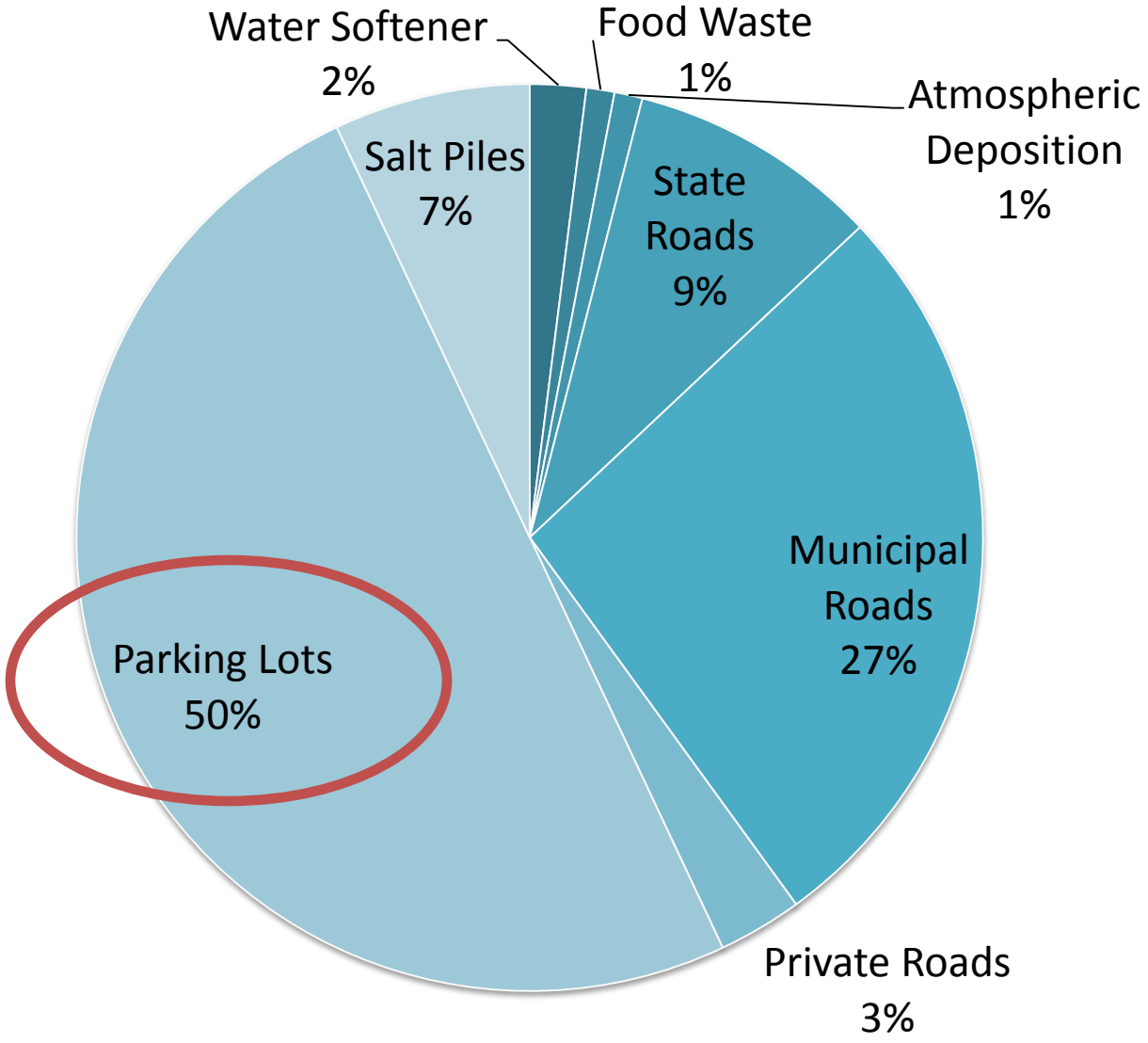


Chloride Impairment is a Statewide Issue



2012 Chloride Impaired Assessment Units – Whole State

Source Characterization




WATCH
FOR
ICE


SLIP & FALL
INJURY REPORT

A Snowball's Chance…

2010 – Mandatory Certification w/ fee HB 1676	Referred to Interim Study
2011 – Mandatory Certification w/ fee HB 202	Inexpedient to Legislate (killed)
2012 – Optional Certification w/ fee SB 392	Passed Senate Killed in the House
2013 – Optional Certification w/ fee HB 523	Retained in committee

Passed as part of the budget bill (without the fee)

Liability Protection

"Salt applicators, and those who hire them, are not liable for damages due to hazards, EVEN WITH ACTUAL NOTICE THEREOF, when such hazards are caused solely by snow or ice…"

Walking on snow and ice is inherently dangerous

Meanwhile, away from the sausage-making…

UNIVERSITY of NEW HAMPSHIRE

Technology Transfer Center
New Hampshire LTAP at UNH

Since 2010 – nearly 800 salt applicators trained

Course Overview

Environmental & Infrastructure Concerns	(20 min)
Pre-Season Preparation, Site Inspection & Expectations	(20 min)
Calibration Demo	(45 min)
Pre-Treatment: Before the Storm	(35 min)
During The Storm Activities	(45 min)
Record Keeping & Salt Accounting System	(10 min)
Exam Review	(10 min)
Exam	(30 min)

Traditional Field Calibration

- Set Gate Height & Auger/Pony Motor speed
- Discharge and Record Spread Width
- Run spreader for 30 seconds & capture salt to weigh.
- Perform calculations!
- Mark the gate height settings!

Results of Field Calibration

Gate Opening	W	A	Discharge Rate (lb/min.)			B	D					
	Spread Width (ft.)	5.28 × W	Run 1	Run 2	Run 3	Average Discharge Rate *((Run1 + Run2 + Run3)/3)*	Pounds of Material Discharged per 1000 square ft. *(D = B × C ÷ A)*					
							5 mph (C = 12)	10 mph (C = 6)	15 mph (C = 4)	20 mph (C = 3)	25 mph (C = 2.4)	30 mph (C = 2)
1”	12	5.28 x 12 = 63.36	70	71	68	(70 + 71 + 68)/3 = 69.67	12 × 69.67/ 63.36 = 13.93	6 × 69.67/ 63.36 = 6.97	4 × 69.67/ 63.36 = 4.64	3 × 69.67/ 63.36 = 3.48	2.4 × 69.67/ 63.36 = 2.79	2 × 69.67/ 63.36 = 2.32
1.5”	11.4	5.28 x 11.4 = 60	92	84	86	(92+84+86)/3 = 87.33	12 × 87.33/60 = 17.47	6 × 87.33/60 = 8.74	4 × 87.33/60 = 5.82	3 × 87.33/60 = 4.37	2.4 × 87.33/60 = 3.5	2 × 87.33/60 = 2.91
2”	11	58.08	106	112	99	105.7	21.83	10.92	7.28	5.46	4.37	3.64
2.5”	10.75	56.76	120	128	129	125.7	26.57	13.28	8.86	6.64	5.31	4.43
3”	10.75	56.76	140	150	143	144.3	30.51	15.26	10.17	7.63	6.10	5.09
EX	14	5.28 × 14= **73.92**	87	92	93	(87+92+93)÷3= **90.67**	12 × 90.67 ÷ 73.92= **14.72**	6 × 90.67 ÷ 73.92= **7.36**	4 × 90.67 ÷ 73.92= **4.91**	3 × 90.67 ÷ 73.92= **3.68**	2.4 × 90.67 ÷ 73.92= **2.94**	2 × 90.67 ÷ 73.92= **2.45**

Melting Capacities of Salt

Pavement Temp (°F)	1 lb. salt will melts this amount of ice	Time it takes to melt this amount of ice
30	46.3 lbs.	5 mins.
25	14.4 lbs.	10 mins.
20	8.6 lbs.	20 mins.
15	6.3 lbs.	60 mins.
10	4.9 lbs.	ineffective
5	4.1 lbs.	"
0	3.7 lbs.	"

Use Pavement Temperature

Truck Mounted Thermometer

Cab Display

Parking Lot Application Rates

Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only	4.5	4	4.5	Not recommended
	Frz. Rain	Apply chemical	5.75	5.25	6.5	Not recommended
30 ↓	Snow	Plow and apply chemical	5.75	5.25	6.5	Not recommended
	Frz. Rain	Apply chemical	6.5	5.75	7	Not recommended
25 - 30 ↑	Snow	Plow and apply chemical	5.75	5.25	6.5	Not recommended
	Frz. Rain	Apply chemical	6.5	5.75	7	Not recommended
25 - 30 ↓	Snow	Plow and apply chemical	5.75	5.25	6.5	Not recommended
	Frz. Rain	Apply chemical	7	6.5	8.25	10.5

Parking Lot Application Rates – (Continued)

Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/ Pretreated with salt brine	Salt Prewetted/ Pretreated with other blends	Dry salt	Winter sand
20 - 25 ↑	Snow or frz. Rain	Plow and Apply chemical	7	6.5	8.25	10.5 for frz. Rain
20 - 25 ↓	Snow	Plow and apply chemical	5.75	7.5	9.5	Not recommended
	Frz. Rain	Apply chemical	7	7.5	10	10.5
15 - 20 ↑	Snow	Plow and apply chemical	7.5	7.5	9.5	Not recommended
	Frz. Rain	Apply chemical	8.75	7.5	10	10.5
15 - 20 ↓	Snow or Frz. Rain	Plow and apply chemical	8.25	7.5	10	10.5 for frz. Rain
0 to 15 ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	10	Not recommended	13 and spot-treat as needed
< 0	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	23	Not recommended	13 and spot-treat as needed

Application Rate Example 1:

January 1, 2015

5:00pm

Current Temp: 20°

Forecast: heavy snow through early morning.
Overnight low of 5°.

1. What application rate should you select for:
   a) Salt Pre-Wet with Salt BRINE
   b) Dry Salt

2. Roughly how much total salt would you expect to use if the parking lot was ~5000 ft^2?

Transition to State Certification

1. Train

Technology Transfer Center
New Hampshire LTAP at UNH

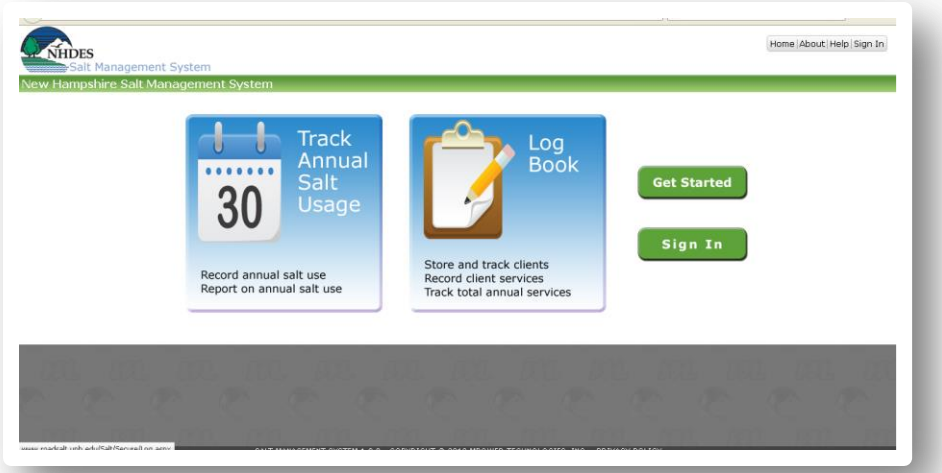
University of New Hampshire

2. Certify

New Hampshire Department of Environmental Services

Content of Rules

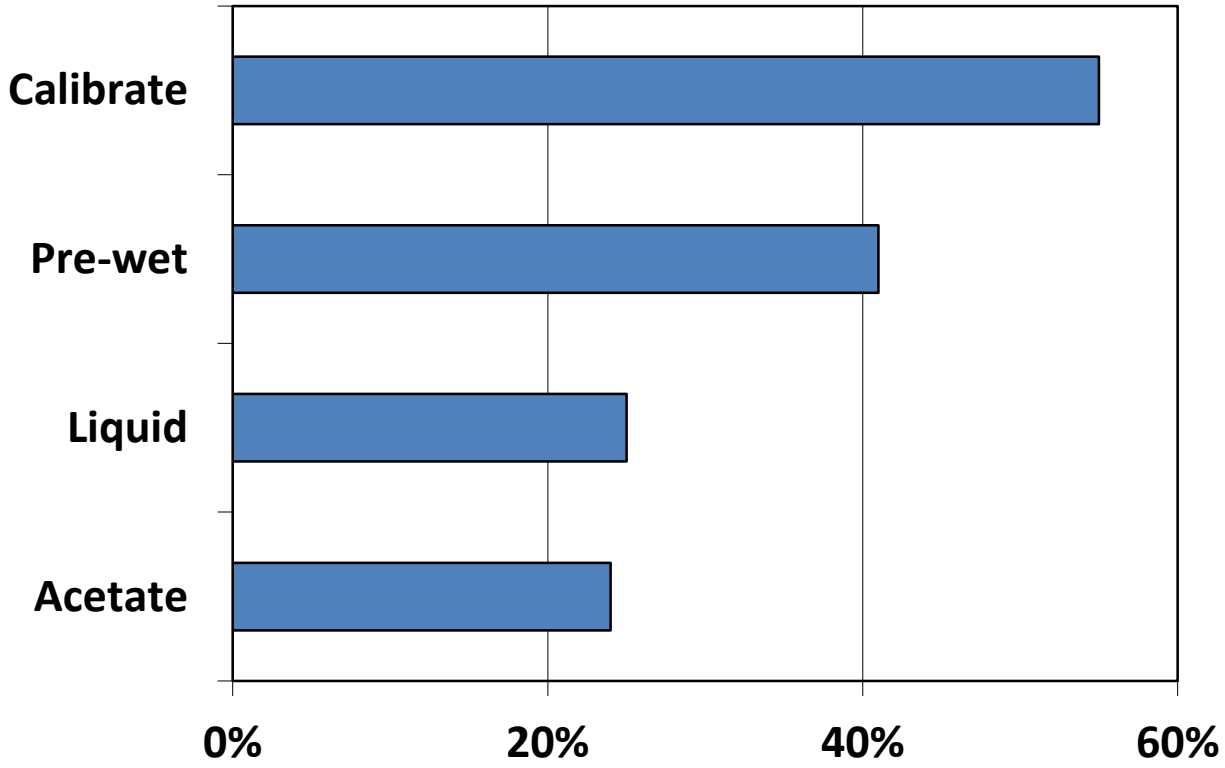
- Policy – “to maintain safe surfaces with the least amount of salt.”
- Training Requirements for Initial Certification
- Continuing Education
- Recordkeeping
- Annual Reporting
- Approved Provider Authorization



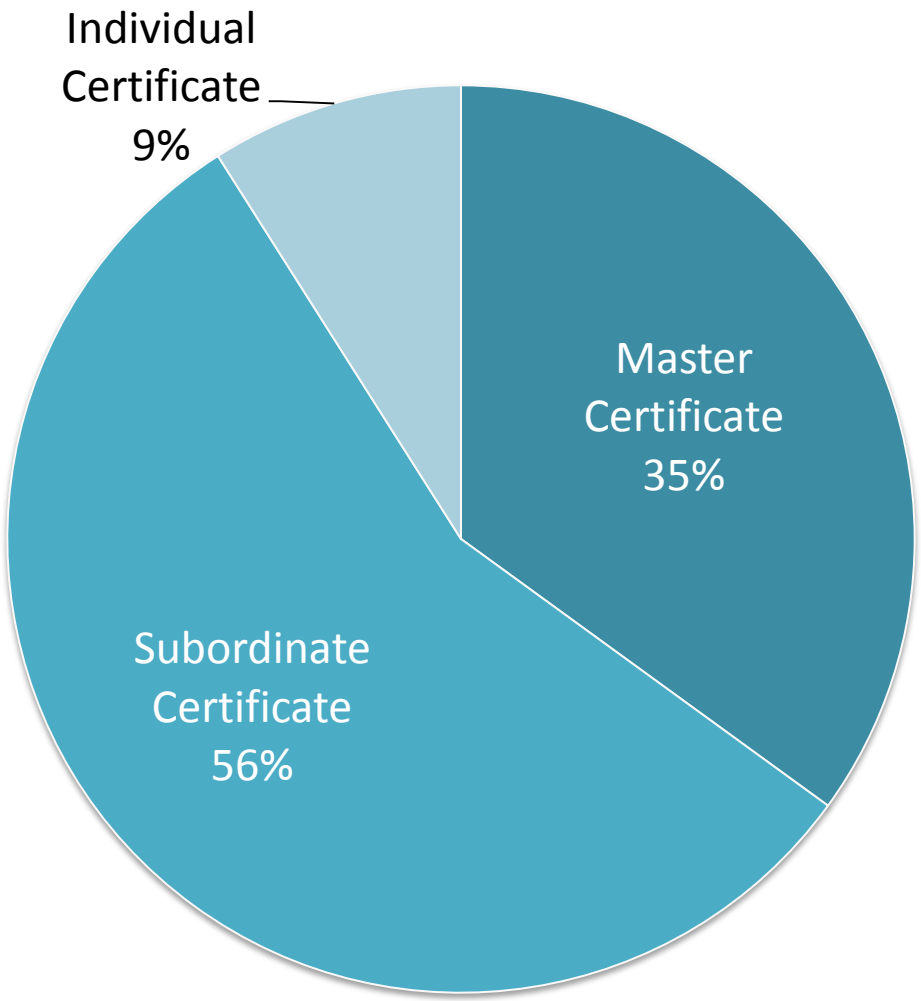
Authorized Provider

SIMA®
snow & ice management association

Profile of NH Salt Applicators

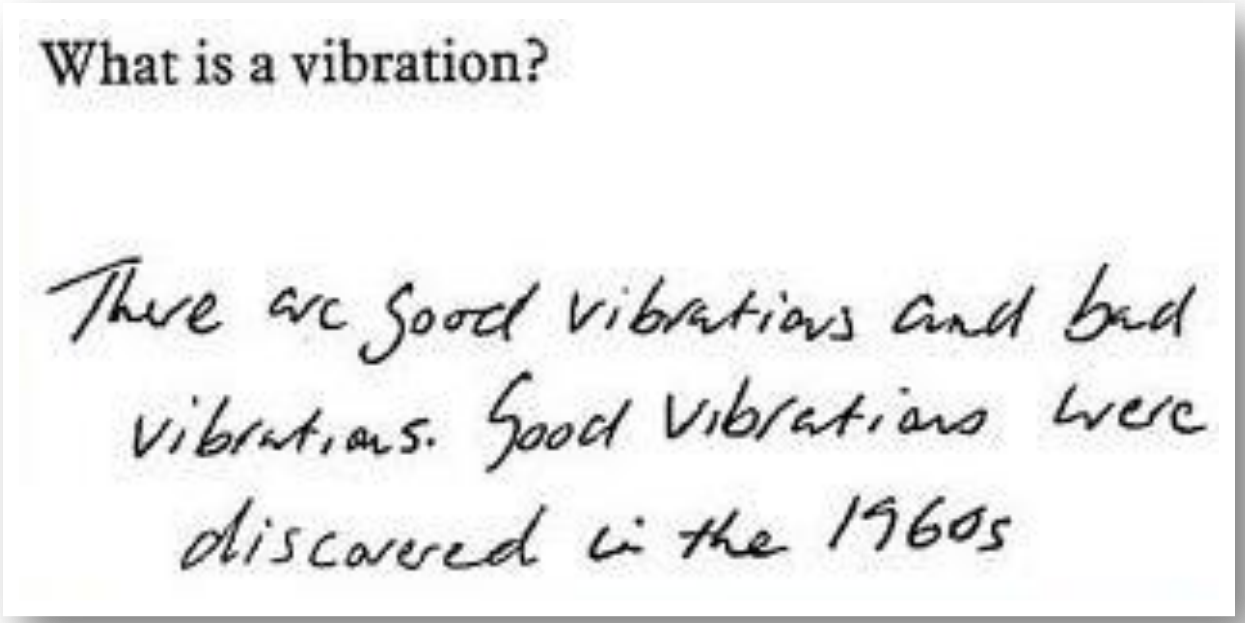


Certification Breakdown



Academic Rigor?

- 5% Failed the Exam


What is a vibration?

There are Good vibrations and bad vibrations. Good Vibrations were discovered in the 1960s

What's Next?

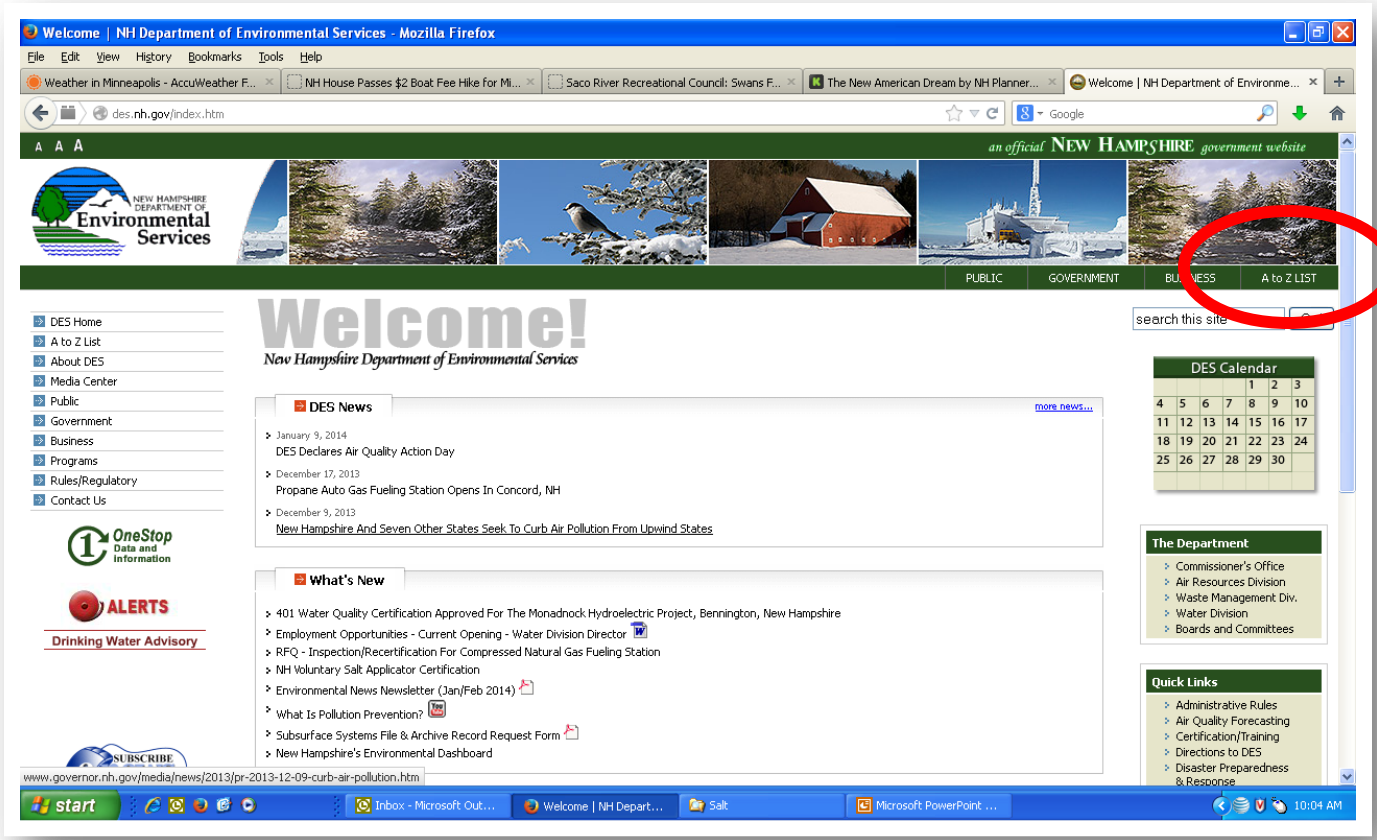
- Annual Reports
- Marketing to Business Owners
- Second Annual Salt Symposium
- Revenue

On the Web

www.des.nh.gov

Click on the “A to Z List”

Select Road Salt Reduction



Questions?

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